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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/522,906	11/21/2005	David McLeod	017058-0310800	7008

909 7590 05/13/2008

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EXAMINER	
KITOV, ZEEV V	

ART UNIT	PAPER NUMBER
2836	

MAIL DATE	DELIVERY MODE
05/13/2008	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/522,906	MCLEOD ET AL.	
	Examiner	Art Unit	
	ZEEV KITOV	2836	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on *17 April 2008*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1 - 12* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1 - 12* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Examiner acknowledges a submission of the arguments filed on April 17, 2008. A new Office Action follows.

Status of Application

Applicant's request for reconsideration of the finality of the rejection of the last Office action is persuasive and, therefore, the finality of that action is withdrawn.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 1 – 5, 11 and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Norton et al. (US 4,808,115) in view of Olsson (US 5,949,300) and Fayfield (US 5,644,730). Regarding Claims 1, and 11, Norton et al. disclose a housing of a module (12 in Fig. 1 and 128 in Fig. 3) and connectors (16, 18 in Fig. 1 and 50 in Fig. 3) to the housing (col. 8, line 43 to col. 9, line 44); the connectors (16, 18 in Fig. 1, 50 in Fig. 3) are configured to be coupled to the circuit cards (38, 40 in Fig. 3, col. 6, line 63 – col. 7, line 23). The connectors (16 in Fig. 1, 50 in Fig. 3) are disposed exterior to the housing (col. 1, lines 14 – 42). However, it does not disclose an isolation circuitry

within the housing. Olsson discloses the isolation circuitry, such as isolation transformers (25, 27 in Fig. 1) located within the housing (41 in Fig. 1). Olsson also discloses his isolation means being located inside the shielded housing (41 in Fig. 1). The reference is pertinent to the case since it deals with the communication bus wiring connections and particularly discloses isolation of the bus elements. Modification of Norton et al. apparatus according to teachings of Olsson will bring benefits of providing a galvanic DC isolation between the circuit card and peripheral devices and between different peripheral devices interconnected through the circuit card. Such modification will not bring any unusual or unexpected result. Such modification, i.e. use of isolation transformer, was recognized as part of the ordinary capabilities of one skilled in the art as evidenced by numerous US and international patents and textbooks on the subject. Therefore, it would be obvious to one of ordinary skill in the art at the time the invention was made to have add the isolation transformers of Olsson to the housing of Norton et al., because (a) it provides a DC galvanic isolation and prevents short-circuiting between the peripheral devices and the circuit card and between different peripheral devices connected together through the circuit card; (b) such isolation is required by MIL-STD-1553 standard and since the Norton system is intended for use in aviation industry (col. 1, lines 14 – 42) the requirements of this standard are to be met, otherwise the manufacturer will not be able to sell his substandard equipment and (c) such isolation is unavoidable when a communication line is a power line. In the Norton et al. system modified according to teachings of Olsson the isolation transformer is located inside the housing since (a) the Olsson transformer is located in the shielded housing

(see Olsson Abstract) and (b) according to Norton et al. (see Abstract), a metal shroud of the LRM connector provides EMI shielding. Therefore, there are sufficient preconditions for placing the shielded transformer of Olsson inside the LRM module thus combining two teachings of shielding together. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to set the shielded transformer of Olsson inside the replaceable module of Norton et al. because in such case a substantial saving of space, cost and material will be achieved.

Additionally Norton does not disclose the network bus coupler coupling a bus to a device connected to the circuit card. Fayfield discloses the network bus coupler (shown in Fig. 4) coupling a bus (110 in Fig. 4) to a device (102 in Fig. 4) connected to the circuit card through junction box (108 in Fig. 4, col. 5, lines 30 - 58). Applying the Norton LRM design modified according to teachings of Olsson for coupling a bus to a device according to teachings of Fayfield will be advantageous for manufacturer of the Norton system because it will provide them with a new application thus expanding their market share.

As well known, at least in this country, the Engineering solutions and inventions are created mostly in private companies, which ultimate goal is to maximize their profits. And as also well known, to achieve this goal the private companies need to expand their market share as much as possible. Therefore, when the company gets a new technical solution protected by the patent (such as Norton and Olsson patents), the salesmen of the company will begin attempting to sell the licenses to every interested side including manufacturers of the Fayfield equipment. Such activity in a case of success would

ultimately expand the sales of the patented product and the company's profits. As stated in the Supreme Court Decision *KSR International Co. vs. Teleflex, Inc*. decision (No. 04-1350, slip opinion): "When a work is available in one field of endeavor, design incentives and other market forces can prompt variations of it, either in the same field or a different one". It is clear that the market forces, i.e. marketing considerations play significant if not decisive role in today's Engineering Design.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to apply the Norton LRM design modified according to teachings of Olsson for implementing the bus coupler of Fayfield, because it will provide additional applications for the manufacturer of Norton system thus expanding its market share.

Regarding Claim 2, the connectors of Norton et al. (see Fig. 3) have a plurality of pins (562, 54 in Fig. 3).

Regarding Claim 3, the recited connector pins are adapted for insertion into their mating pair (160 in Fig. 3),

Regarding Claim 4, Norton et al. disclose the female connectors (160 in Fig. 3) at the bottom of the circuit card (mother-board in Fig. 3), having the receptive sockets for insertion of pins of the male connector of functional modules (52, 54 in Fig. 3).

Regarding Claim 5, Olsson discloses the isolation element as the isolation transformer (25, 27 in Fig.1). A motivation for modification of the primary reference is the same as above.

Claim 12 is rejected under 35 U.S.C. 103(a) as being unpatentable over Brodsky (US 4,833, 600) in view of Olsson (US 5,949,300). As per Claim 12, it differs from Claim 11 rejected above by use of an exclusive term “consisting”. Regarding Claim 12, Brodsky discloses the isolation circuitry, i.e. transformer (90 in Fig. 2, col. 8, lines 25 - 39) electrically coupled to INCOM coupling circuit (22 in Fig. 2), which is located on a circuit board or card CONICARD, which in turn is plugged into IBM processor bus (col. 6, lines 10 – 28). Therefore, the CONICARD represents a network bus coupler configured to couple a communication bus to a device, i.e. IBM processor, which is connected to the CONICARD through its own IBM processor bus. However, Brodsky does not disclose the transformer housing. Olsson discloses a housing (41 in Fig. 1) configured to house an electrical isolation circuitry, i.e. transformers. It further discloses data bus connectors disposed exterior to the housing and being electrically coupled to the isolation circuitry, connectors are to be coupled to the data bus. As to connecting the transformer to the CONICARD through the connector, since the Olsson system already has connectors for connection to the bus so in the modified circuit the transformer is connected to the card through the connector. It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the Brodsky isolation transformer by providing them with a shielding and accordingly with the housing because transformer shielding is necessary due to variety of reasons such as (a) preventing interference between the input and output data streams, (b) preventing EMI problem, and (c) preventing the transformer stray magnetic fields from affecting other adjacent parts located in vicinity.

Claims 7, 8 and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Norton et al. in view of Olsson. Regarding Claim 7, Norton et al. disclose following elements of the claim: a modular interconnection structure shown in Fig. 3, the circuit card (20 in Fig. 1 and 3) including plurality of sockets in female connectors (Fig. 3), the modular bus network having a bus coupler (LRM in Fig. 1 and 3) coupled to the circuit card through connectors (16 in Fig. 1 and 50 in Fig. 3). It further discloses plurality of modules having housing (12 in Fig. 1 and 22, 24 in Fig. 2) having a plurality of pins (shown in Fig. 3) disposed exterior of their housing, which are engageable with some of the sockets of connectors (160 in Fig. 3) of the circuit card/mother board (20 in Fig. 1 and 3). The network bus coupler (LRM) is coupling the bus to the device, i.e. the transmitter (optical driver) and the receiver, which inherently present in the system and are connected to the circuit card, since otherwise the optical communication system of the reference is not able to function.

As to a junction box of the claim, according to The Authoritative Dictionary of IEEE Standard Terms (7^{th} Ed.), the junction box is an enclosed distribution panel for connecting or branching one or more corresponding electric circuits without the use of permanent splices. Norton et al. disclose the apparatus having a distribution panel, i.e. circuit board (20 in Fig. 1 and 3) used for connecting one or more corresponding electrical circuits without use of permanent splices. The Norton et al. interconnection system is inherently enclosed, since leaving this equipment without proper housing in the aviation industry environment would be in violation of existing standards. An example of

such enclosure is shown in Fig. 1 of Norton et al. showing an enclosure housing the LRM module.

However, Norton et al. does not disclose an isolation circuitry, which is disclosed by Olsson (isolation transformer (25, 27 in Fig. 1). It would be obvious to one of ordinary skill in the art at the time the invention was made to have added the isolation transformers of Olsson to the system of Norton et al., because (a) both Norton and Olsson references deal with avionic systems, and (b) according to Olsson (col. 1, lines 14 - 30), such isolation is required by MIL-STD-1553 standard and since the Norton system is intended for use in aviation industry (col. 1, lines 14 – 42) the requirements of this standard are to be met, otherwise the manufacturer will not be able to sell his substandard equipment. Such modification, i.e. use of transformers for providing DC galvanic isolation was recognized as part of the ordinary capabilities of one skilled in the art.

Regarding Claim 8, Olsson discloses the isolation transformers (see above).

Regarding Claim 10, Olsson discloses an aviation component, since MIL-SRD-1553 standard is the standard specific for an aircraft.

Claims 6 and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Norton et al. in view of Olsson, Fayfield and Shaffer (US 5,841,778). Regarding Claim 6, Norton et al. disclose the connectors disposed exterior of the module housing (see Fig. 3). Shaffer discloses a bus terminator (elements 110 and 160 in Fig. 1); the terminators are inherently disposed in the housing and electrically coupled to a

connector. In the Norton system modified according to teachings of Shaffer, the terminators are inherently disposed in the housing and connected to the connectors leading to the communication cables, i.e. located outside the housing. The terminators are to be set inside the housing because setting them outside the housing would increase the connections length, which is detrimental for communication at such high frequencies as used in systems like the Norton system. The terminators are inherently connected to the connector since the communication channel is connected to the device (receiver and transmitter) through the connector and the terminator is a connected to the communication channel. It would be obvious to one of ordinary skill in the art at the time the invention was made to have added the terminator elements according to Shaffer to the Norton et al. system, because as well known in the art, it would prevent the signals reflection from the ends. Use of terminations for prevention of signals reflection in the electrical lines was recognized as part of the ordinary capabilities of one skilled in the art.

Regarding Claim 9, Shaffer discloses a bus terminator (elements 110 and 160 in Fig. 1) disposed in the housing and electrically coupled to a connector. A motivation for modificatin of the primary reference is the same as above.

Response to Arguments

Applicant's arguments filed April 17, 2008 have been fully considered. Some of them are now moot due to rewritten portions of the Office Action but some other arguments are addressed.

1. Applicant attacks the Norton reference for not disclosing an isolation circuitry (page 4, 5th paragraph). However, as stated in the Office Action, the isolation circuitry is disclosed by another reference, Olson. In response to applicant's arguments against the references individually, one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.,* 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986).

2. Applicant further attacks the Norton reference alleging that "element 128 (in Fig. 3) of Norton cannot possibly correspond to the housing of claim 1" (page 4, 6th paragraph). Since the argument is typed in bold letters one would expect to find at least some support for the opinion. However, Applicant's explanation of his opinion has nothing to do with the wall of the housing but includes lengthy arguments about a role of connector. Such inconsistency leaves the argument completely unfounded. The walls of the module housing are clearly shown and recognizable in Fig. 1 and 3.

3. Applicant alleges, that in the Norton system '"there are no connectors electrically coupled to any circuit disposed within the housing". As stated in The Authoritative Dictionary of IEEE Standard Terms (7th Ed., 2000), "connector: A coupling device employed to connect conductors of one circuit of transmission element with those of another circuit of transmission element". Connector (16 in Fig. 1 and 50 in Fig. 3) is clearly shown in the Drawings. The allegation that the connector is not being connected to any circuit disposed within the housing is defying a common sense. If we assume arguendo that it is true, then (1) the connector becomes useless piece of equipment, (2)

the internal parts of the module, i.e. light emitting and receiving diodes become disconnected from the circuit card, (3) it would make an existing patent of Norton dysfunctional. Therefore, just applying a common sense one has to come to conclusion that **the connector is inherently connected to the interior of the module**.

4. Applicant further alleges that since the LRM module is coupling an optical cable **it is self–evident** that there is no concern for DC galvanic isolation and short circuits (page 5, last paragraph). However, to make such bold statement of self-evidence, one must ignore substantial body of evidence contradicting such view. The isolation transformers are widely used in combination with the optical cables for both transmission and reception. There are plural sources of evidence for that such as, for example Lau (US 5,541,957), disclosing receive and transmit isolating transformers (44R and 44T in Fig. 2, col. 7, lines 36 – 52) used in the optical cable communication system. According to Lau (col. 5, lines 61 - 66), an optical transmitter connectable to an optical cable can be coupled to the transmit transformer without using the connecting unit and outgoing twisted-pair cable. Therefore, the issue of the isolation transformer being used in the optical communication is far from being self-evident, as Applicant alleges.

5. Applicant further attacks the motivation for combining Norton, Fayfield and Olson references together (page 6, bottom paragraph). It alleges that the motivation as stated in the Office Action, i.e. "because it will provide them (manufacturers) with expanded market niche" is not supported by the facts, **and does not constitute objective evidence** to combine and modify the cited references. This Applicant's argument

mounts to a requirement of the motivations being explicitly disclosed in the prior art. To support his position, Applicant makes a reference to the Supreme Court KSR decision (page 6, bottom paragraph). However, the Supreme Court *KSR International Co. vs. Teleflex, Inc*. decision (No. 04-1350, slip opinion) does not support the Applicant's position. On the contrary, the Supreme Court decision has rejected the previously existing "strict" TSM ("teaching, suggestion, or motivation") test for obviousness and replaced it with a modern "expansive and flexible approach". Regarding motivational statement judge Kennedy wrote: "As our precedents make clear, however, the analysis **need not seek out precise teachings directed to the specific subject matter of the challenged claim,** for a court can take account of the inferences and creative steps that a person of ordinary skill in the art would employ." Accordingly, a previous rule that the motivation should be stated in the reference is not valid any more. This is why the additional evidence is not deemed necessary and not presented at this stage of prosecution. However, if the Examiner will be convinced that such evidence is legally necessary it will be provided.

As to the motivational statement presented in the Office Action, it is in accordance with the Supreme Court Decision that states: "When a work is available in one field of endeavor, design incentives and other market forces can prompt variations of it, either in the same field or a different one". It is clear that the market forces, i.e. marketing considerations play significant role in today's Engineering Design.

6. Applicant further attacks the Claim 11 rejection, alleging that the housing would not house *essentially* an electrical isolation circuit, i.e. isolation transformer, because:

"Norton makes clear that LRM assembly houses the circuit cards 30, 40 as well as plurality of other components". Applicant apparently believes that the claim language particularly term "essentially" makes a meaning of the housing containing only the isolation circuitry, i.e. transformer. However, the term "comprising" used in the Claim 11 makes the claim inclusive. The term "essentially" does not change it since it is a normal inclusive term. If Applicant wants to make the claim exclusive he should change the wording of the claim.

7. Regarding Claim 7 rejection, Applicant further attacks combining together Norton and Olsson reference saying: "the Office Action assumes that the system of Norton is governed by MIL-STD-1553, which is not supported by facts" (page 9, bottom paragraph – page 10, 1st paragraph). Assuming that his allegation is true the Applicant goes further speculating that "according to the Office Action's logic, had an isolation circuitry been required in the system of Norton, as suggested by the Office Action, it is self-evident that it would have been already implemented in such system specifically because "the manufacturer will not be able to sell his substandard equipment".

The previous Office Action explicitly stated: "such isolation is required by MIL-STD-1553 standard and since the Norton system is intended for use in aviation industry **(col. 1, lines 14 – 42)** the requirements of this standard are to be met, otherwise the manufacturer will not be able to sell his substandard equipment". Therefore, the so-called Examiner's assumption is supported by the facts, the Applicant's "self-evidence" is not replacement for the real evidence and his allegation is purely speculative.

8. Applicant further attacks the Shaffer reference for not disclosing the isolation circuitry. In response to applicant's arguments against the references individually, one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.,* 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986).

9. Applicant further attacks the Shaffer reference as: "merely relate to a system for controlling traffic light on local area network. Thus, any proper combination of Norton, Olsson and Shaffer cannot result in any way in the invention of Claim 6 and 9." Such allegation mounts to a requirement of analogous art. However, the recited above the Supreme Court Decision explicitly states: "When a work is available in one field of endeavor, design incentives and other market forces can prompt variations of it, either in the same field or a different one". Therefore, the fact that Shaffer system belongs to a different art is immaterial.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Zeev Kitov whose current telephone number is (571) 272 - 2052. The examiner can normally be reached on 8:00 – 4:30. If attempts to reach examiner by telephone are unsuccessful, the examiner's supervisor, Michael Sherry, can be reached on (571) 272 – 2800, Ext. 36. The fax phone number for organization where this application or proceedings is assigned is (571) 273-8300 for all communications.

/Michael J Sherry/

Supervisory Patent Examiner, Art Unit 2836

/Z. K./

Examiner, Art Unit 2836

5/9/2008